Contrary to the popular opinion in this respect, these enormous fields of ice do not lower the temperature of the Atlantic Slope, which in its entire extent, from the Canadian Maritime Provinces to Florida, has experienced during May and June, mean temperatures decidedly above the normal.

High Tides.—Galveston, Tex., 12th, large portion of east part of island submerged. Cape Lookout, N. C., 16th, 17th. Ft. Macon, N. C., 18th. Portsmouth, N. C., 15th to 17th.

TEMPERATURE OF WATER.

The *temperature of water* as observed in rivers and harbors at Signal Service stations, with average depth at which observations were taken, is given in the table on the left hand side of chart No. II. At the following stations, the thermometers being broken, prevented observations on the dates given: Chicago, 11th to 17th; Duluth, 6th to 16th; Savannah, 2nd to 25th. The report from Punta Rassa has not been received.

ATMOSPHERIC ELECTRICITY.

Thunder-storms.—New England, 1st, 2d, 6th, 7th, 11th, 12th, 13th, 14th, 16th, 17th, 21st to 30th. Middle Atlantic States, 1st to 3d, 6th to 14th, 16th, 17th, 21st to 30th. South Atlantic States, 1st, 2d, 3d, 6th, 7th, 8th, 9th, 11th to 16th, 25th, 30th. Lower Lake region, 6th, 9th to 14th, 25th to 30th. Upper Lake region, 1st to 6th, 9th to 15th, 18th, 19th, 23d to 30th. East Gulf States, 1st to 15th, 19th to 30th. West Gulf States, 1st, 2d, 5th, 6th, 9th to 16th, 20th to 30th. Ohio valley and Tennessee 2d, 6th, 11th to 14th, 19th to 30th. Upper Mississippi and Lower Missouri valleys, 1st to 30th. Eastern Rocky Mountain slope, 4th, 12th, 17th, 18th, 20th to 25th, 29th, 30th. Arizona, 19th, 20th. Oregon, 10th. Washington Territory, 7th.

Auroras.—On the 12th the aurora was observed in New Hampshire and Wisconsin, and at Vevay, Ind. Cloudy weather in the Lower Lake region probably prevented observations in that section. On Mt. Washington, at 8 p. m., faint; color, pale straw. Milwaukee, from 8 to 9 p. m., faint; color, pale blue, changing to indistinct orange; altitude about 10°; no motion. Vevay, Ind., until 1:30 a. m. of the 13th; altitude about 45°; faint flashes of white light, alternating with faint pulsations of crimson color. On the 15th auroral displays occurred from Maine to Dakota. Gardiner, Me., not visible at 9, but quite bright from 11 p. m. to 1 a. m. At Montreal, Can., auroral display. Burlington Vt., faint, with distinct dark segment, from 11:15 p. m. to 12:15 a. m. of the 16th. Milwaukee, from 8 to 9 p. m., from N. to W.; faint; altitude about 5°; color well defined blue, shading into orange at the horizon; motionless, except slight tremor in blue light. Escanaba, 9 p. m. to 10:15 p. m.; arch of pale yellow, extending from 45° to 60° azimuth; altitude about 20°. Pembina, 9 p. m., faint, but indistinct, owing to bright moonlight. 16th, displays reported from Vermont to Iowa. Burlington, Vt., from midnight to 12:30 a. m. of the 17th; faint, no definite characteristics. Escanaba, 8:45 p. m., of increasing brilliancy till 9:30 p. m., then gradually fading away; disappeared at 11 p. m.; well defined beams of 2° breadth, reaching an altitude of 45°; color, pale yellow. Thornville, Mich., from 9:30 to 10 p. m., faint: slight movement of rays from E. to W. Monticello, Ia., display at 11 p. m. Isolated cases of displays occurred as follows: Gardiner, Me., 18th, from 1 a. m. to 2:30 a. m.; extent, 45° from N. to NE., resembling the light of the rising moon. Burlington, Vt., 14th, faint from 11:15 p. m. till after midnight; bright arch of light. Burlington, Vt., 27th, from 12 to 12:25 a. m., bright arch, with distinct dark segment, but no streamers. Milwaukee, 11th, 8 to 10 p. m., faint; extending from N. to W.; color, pale blue, shading to indistinct orange at horizon; interspersed with dark hazy streaks, seemingly arising from nucleus of dark segment; no perceptible motion. Pembina, 14th, 9:40 p. m., to morning of 15th, extent from 180° to 255° azimuth; altitude, 15.°. One narrow arch, lower edge well-defined, but upper irregular and broken, with motion as of faint phosphorescent flames, rising from a ribbon of half-smothered fire; marked intermittence of brilliancy. Occasionally quick luminous rays shot towards the zenith, with the tremulous motion characteristic of "merry dancers." The peculiarity of the display was the color of the arch, which was uniformly green, varying in shade, but at no time displaying any other variety of color. Independence, Iowa, 5th, auroral display. St. Meinrad, Ind., 3d, 8 to 9 p. m., in NW., faint, extent, 35°, altitude, 20°; 10th, 9 p. m., faint on account of bright moonlight; 11th, 9 to 11 p. m., extent, 120°, altitude, 30°, diffuse arch of yellowish white. Bellefontaine, Ohio, 26th, 9 p. m., seen through rift in clouds. The most southerly station reporting during the month was St. Meinrad, Ind.

OPTICAL PHENOMENA.

Solar and Lunar Halos were not very numerous during the month, but were most frequently observed along the Atlantic coast, in Tennessee and the Ohio valley and in Oregon.

Mirage.—New London, Conn., 12th, nearly all day and from 8 to 8:30 p. m.

MISCELLANEOUS PHENOMENA.

Earthquakes.—San Francisco, Cal., 24th, 12:47 a. m.

Prairie and Forest Fires.—Pike's Peak, 4th, 7th, 8th, 11th, 14th, 16th, 19th; Santa Fe, 8th to 14th; Colorado Springs, 9th.

Locusts.—30th, Hudson, Mich., very numerous one mile west of this place. Umatilla, Or., very nume-

rous; much damage to gardens; 25th, still very destructive. 5th, Umatilla, Oregon, very numerous in county, doing much injury to gardens. 25th, still very destructive. Fort Sill, I. T., 10th, large numbers of young grasshoppers. Reno, Nev., June 18th, have done considerable damage to growing grain; hatching out in myriads; north end of Sierra Valley already stripped of every green thing, but at south end, the insects are just hatching out. Fort Gibson, I. T., 29th, flying west. Winnemucca, Nev., 30th, very large numbers of young grasshoppers in Paradise Valley.

Sunsets.—The characteristics of the sky at sunset as indicative of fair or foul weather for the succeeding twenty-four hours have been observed at all Signal Service Stations. Reports from 144 stations show 4,255 observations to have been made, of which 21 were reported doubtful; of the remainder, 3,374 or 79.3 per cent. were followed by the expected weather.

Atmospheric Electricity.—New Mexico—Santa Fe, 4th, 16th to 20th, 24th. *Colorado*—Colorado Springs, 23d. *Texas*—Castroville, 1st, 6th, 25th, 29th; Laredo, 5th, 9th, 12th; Coleman City 15th; Concho, 5th, 15th, 27th, 29th; Stockton, 3d, 12th, 15th, 25th, 26th: Fort Davis, 6th, 11th, 12th, 15th, 25th, 26th, 29th; Fort McKavett, 16th; Fort Elliott, 15th.

Army Worm.—Freehold, N. J., 10th, ruining many fields of grass and grain. 17th, Whitehall and Nazareth, Pa., have destroyed large fields of grass and rye. 11th, at and near, Northport, and along the shores of Great South Bay, Long Island, doing great damage to crops. 11th, at Eatonville, and from Freehold to Mt. Pleasant, N. J., exceedingly destructive. Kent county, Del., early part of month, doing great damage to growing grain. 3rd, Hempstead and Islip, Long Island, doing great damage.

Meteors.—Macon, Ga., 30th, about midnight a brilliant meteor appeared near the zenith like a great mass of fire as large as a barrel and whirling in the air. It moved slowly down the northeastern sky and when at an elevation of 45° the light changed to a brilliant red, paled into saffron and then into all shades of green. At an elevation of 30° the light disappeared and at the expiration of about three minutes a terrible explosion followed. Light was sufficiently brilliant to awaken people in their houses. Was observed at Hawkinsville 40 miles south and at Eatonton 50 miles north. Little Rock, Ark., 14th, very bright, color, violet, course from E. to W., trail about 10° long: 22nd, 10:05 p. m., color, yellow; course from E. to W., trail 15° long. Mayport, Fla., 29th, 8:15 p. m., very brilliant meteor; color, yellowish white; course W. to E. Shreveport, 28th, 10 p. m., very large and brilliant; course from zenith to southern horizon; about midway to horizon exploded scattering pieces in all directions.

Zodiacal Light.—Yates county, Kan., 1st, 2nd, 5th, 6th, 8th, 9th. Nashville, Tenn., 10th, very bright. Mr. Charles Hasselbrink, Havana, Cuba, reports:—May 31st, 8:30 p. m., light bright and sensibly intermittent, but not rapid or sudden; 9:30 p. m., axis inclined to south about 45°, azimuthal extension (35 to 40 degrees) remarkable. June 1st, 8 p. m., light exceedingly bright, of a whitish blue tint; 8:25 p. m., inclined to south 65° and at 9 p. m., 45°, intermittence frequent and sensible; 7th, 8 to 10 p. m., very bright and extensive, intermittence very sensible, inclination of axis to the south 45°. Constant cloudiness from 2nd to 6th and 8th to 12th.

Sun Spots.—The following record of observations, made by Mr. D. P. Todd, Assistant, has been forwarded by Prof. S. Newcomb, U. S. Navy, Superintendent, Nautical Almanac Office, Washington, D. C.:

Date—June, 1880.	No. of new—		Disappeared by solar rotation.		Reappeared by solar rotation.		Total number visible.		Remarks.
	Groups	Spots.	Groups	Spots.	Groups	Spots.	Groups	Spots.	
3rd. 4 p. m....	0	1	0	20†	0	1	2	8	Faculæ.
4th, 3 p. m....	0	0	0	2	0	0	2	6	Faculæ.
8th, 4 p. m....	2	7	.....	.....	1	2	2	7	
11th, 4 p. m....	0	0	0	0	0	0	1	5	
16th, 4 p. m....	1	7	.....	.....	1	7	1	7	Spots probably disappeared by solar rotation.
17th. 3 p. m	1	3	0	0	1	3	2	10	
18th, 4 p. m....	0	7†	0	0	0	0	2	17†	Faculæ.
19th, 3 p. m....	1	6	0	0	0	0	3	23†	Faculæ. Many of the spots small.
21st, 4 p. m....	0	0	1	1	0	0	2	22†	Many of the spots small.
22nd, 5 p. m....	0	12	0	0	0	0	3	34†	Many of the spots small.
23rd, 5 p. m....	0	0	0	4	0	0	2	30†	Many of the spots small.
28th, 5 p. m....	2	20†	1	15	.....	.....	3	35†	Faculæ.
30th, 9 a. m....	0	0	1	15	0	0	2	20	Faculæ.
30th, 5 p. m....	0	0	0	0	0	0	2	20	Faculæ.

†Approximated.

Mr. Wm. Dawson, at Spiceland, Ind., reports: 1st, 2 groups, (low power and poor air;) 2nd, 2 groups, 53 spots; 3rd, 2 groups, 24 spots; 5th, 1 group, 2 spots; 7th, 1 group, 8 spots; 10th, 3 groups, 25 spots; 11th, 2 groups, 16 spots; 12th, 2 groups, 10 spots; 13th, 2 groups, 7 spots; 16th, 1 group, 7 spots and 2 groups, 12 spots; 17th, 2 groups, 26 spots; 18th, 2 groups, 54 spots: 19th, 3 groups, 62 spots; 20th, 3 groups, 85 spots; 24th and 25th, 3 groups, 80 spots; 27th, 2 groups, 45 spots; 28th, 3 groups, 28 spots; 29th, 5 groups, 26 spots. A large spot has just disappeared by solar rotation. Mr. H. D. Gowey, at North Lewisburg, Ohio, reports: 23rd, 8.45 a. m., group; 25th, 9.30 a. m., on SW. quarter near equator.

Mr. F. Hess, Fort Dodge, Iowa, reports: "1st to 13th, about 30 spots traversed the sun and disappeared by rotation. 9th, a new spot, among extensive faculæ, appeared, which at 10 a. m. of the 11th had

disappeared. New groups of spots and faculæ appeared on the 14th and 17th and remained visible to end of month—most numerous on the 25th when 38 spots were visible."

Mr. David Trowbridge. at Waterburg, N. Y., reports: 22nd, group visible without a telescope.

EXTRACTS.

(From Nature, June 17, 1880.)

A Meteorological Conference was held at Sydney in November last, the representatives of the different Colonies being Messrs. James Hector for New Zealand, Charles Todd for South Australia, R. L. J. Ellery for Victoria, and H. C. Russell for New South Wales. The whole question of weather telegrams was under anxious consideration. The system in present operation embraces only the Colonies of South Australia, Victoria, New South Wales, and Queensland, but a resolution was passed declaring it desirable to secure the co-operation of the Governments of Western Australia, Tasmania, and New Zealand in the system of inter-colonial weather telegrams. The facts pointed out by Mr. Todd as to the great regularity observed by the atmospheric disturbances in pursuing a course from west to east, and the statement by Dr. Hector that early notices could be sent from Queensland of the origin and progress of the dangerous and suddenly occurring cyclones that cross the northern part of New Zealand, sufficiently attest the practicability of the system of weather warnings and their practical value. For instance, the great storm which wrecked the *Dandenong* in September, 1876, could have been telegraphed in sufficient time to have prevented the great loss of property which took place at the different ports along the coast of New South Wales. We have the greatest pleasure in noting a deliverance by the Conference to the effect that weather telegrams and forecasts shall in all cases depend upon the observations used for general meteorological and climatological statistics. Much emphasis was laid on the establishment of high-level stations with a more special view to the investigation of the winds; and the Conference recommended that there be established in each of the Colonies, upon a high mountain peak, a meteorological observatory for the special study of winds and other meteorological phenomena.

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Albert J. Myer

Brigadier General, Chief Signal Officer, U. S. A.

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